Ethan Oh

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EDUCATION

Johns Hopkins University — Baltimore, MD
Combined BS/MS — Expected May 2026
B.S. Mechanical Engineering, M.S.E. Robotics — Cumulative GPA: 3.91

PROJECTS

Visual Servoing of 6 DoF Robot Arm — Baltimore MD, USA
Independent Research Project — Present

- Building a budget 6 DoF robot arm to experiment in image-based, position-based, and hybrid visual servoing
- Prototyped lightweight, 3D printed cycloidal drive to amplify torque output of actuators

Autonomous Patrolling Trashbot — Baltimore MD, USA
Cumulative Project for "Robot System Programming" — May 2025

- Led a team of 4 in developing software stack for patrolling robot that detects and picks up trash
- Created ROS2 package to control Roomba-style robot with 4 DoF robot arm in Gazebo simulation and real world

Reverse Engineering a Cordless Vacuum Cleaner — Seoul, South Korea
Cumulative Project for "Mechanical Product Design" — December 2022

- Disassembled Samsung Powerstick vacuum and modeled parts in Solidworks to simulate cyclone chamber fluid flow
- Used MATLAB to perform FEA to approximate stress and deformation of structure

EXPERIENCE

Research Assistant — Baltimore MD, USA
Johns Hopkins University, Agile and Intelligent Robotics Laboratory — January 2025 – Present

- Designed vehicle hardware stack of RTK GPS, NVIDIA Jetson, Pixracer, and motion tracking for multi-agent PAC NMPC
- Performing hardware experiments to obtain real world data for paper submission to ICRA 2026

Robot Arm Design Lead — Baltimore MD, USA
Johns Hopkins University, Mars Rover Team — September 2024 – Present

- Led team of 6 in designing and building a 6 DoF robot arm in conjunction with electrical and software teams
- Wrote hardware interface linking sensors and controllers for robot arm, wheels, and other subsystems
- Building autonomous navigation stack using RTK GPS, odometry/IMU data with EKF, and RTABMap

Mechanical Engineering Intern — Baltimore MD, USA
Stanley Black & Decker, CAE Team — June 2025 – August 2025

- Developed MATLAB GUI for circular saw team to predict guard close time and impact force, accelerating design
- Wrote Python script to automate tedious FEA post processing steps and generate report PPT, presented to several CAE teams across the company, saving several hours per engineer per drop orientation simulation
- Led interdisciplinary team of 8 in Intern Innovation Challenge and presented solution to business leaders

Research Assistant — Seoul, South Korea
Seoul National University, Turbomachinery Laboratory — October 2022 – June 2023

- Collaborated with rocket startup company Perigee to develop and optimize turbopump design
- Analyzed liquid oxygen pump impeller/inducer designs with ANSYS CFD simulations to reduce cavitation

Research Intern — Gwangju, Jeolla, South Korea
Korea Institute of Medical Microrobotics — June 2020 – August 2020

- Led design and testing of a prototype cable-driven parallel robot using SolidWorks, 3D printing, Arduino, and Python to see applicability in physical therapy
- Presented research to Washington Academy of Sciences, awarded 2nd place, co-authored paper published by IEEE